

REMARKS

An objection is made with respect to the Information Disclosure Statement of 06 May 2010. The Supplemental Information Disclosure Statement accompanying this paper is understood to fully obviate this objection. Full consideration of these references is respectfully requested.

The §112 Rejection:

Claims 1-5, 7, 9, 12, 13, 16-19 and 21-23 are rejected under §112, first paragraph. While applicants continue to observe that "the absence of compression" in making gypsum wallboard is adequately supported by the specification as filed and is well understood as such in the gypsum wallboard art, as exemplified by newly cited Roberts U.S. Patent No. 3,908,062, applicants hereby cancel this phrasing from independent claims 1 and 13. This is understood to obviate this rejection, and reconsideration and withdrawal are respectfully requested.

The §103 Rejection:

Claims 1-5, 7, 9, 13, 16-18, 21, 22 and 23 are rejected under 35 U.S.C. §103(a) from Roberts in view of Deleuil U.S. Patent No. 4,221,599. Claims 12 and 19 are rejected under 35

U.S.C. §103(a) from Roberts in view of Deleuil and in view of Marcoux et al. U.S. Patent No. 5,980,627.

Prima Facie Obviousness is not Established

Roberts concerns laminar-type composites, *i.e.*, those including a gypsum layer and a mineral fiber layer. Roberts describes the use of settable gypsum and not the use of uncalcined gypsum particles (DSG particles), which is the key feature of the present invention.

The record of this application, including newly cited Roberts, establishes that gypsum wallboard is made by setting from calcium sulfate hemihydrate (stucco) and that such setting does not involve compression. This is known to the ordinary worker in this art, who would not look to the art of Deleuil, which is that of pressure compacting. The ordinarily skilled person would not obviously combine Roberts and Deleuil, unless aided by applicants' claims and hindsight.

In addition, applicants respectfully refer to Guideline A of the September 1, 2010 PTO "Examination Guidelines Update: Developments in the Obviousness Inquiry After *KSR v. Teleflex*." This Guideline concerns combining prior art elements, identified

as Rationale A. As noted thereat, the *2007 KSR Guidelines* quoted *KSR* and noted that

It can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *KSR*, 550 U.S. at 401.

The 2010 Guidelines continue:

In view of the cases decided since *KSR*, one situation when it is important to identify a reason to combine known elements in a known manner to obtain predictable results is when the combination requires a greater expenditure of time, effort, or resources than the prior art teachings. Even though the components are known, the combining step is technically feasible, and the result is predictable, the claimed invention may nevertheless be nonobvious when the combining step involves such additional effort that no one of ordinary skill would have undertaken it without a recognized reason to do so.

The Office has not provided a reason for combining Deleuil with Roberts to arrive at applicants' claimed invention in a manner that complies with Rationale A. Neither reference teaches predictability of combining DSG particles at certain levels in stucco and setting same into wallboard, thereby improving the wallboard's acoustic properties.

The description and references made to Roberts by the Office acknowledge an uncalcined gypsum additive. The Roberts

teaching should not simply be combined with the Deleuil disclosure of DSG additive without due consideration of the significant practical issues in combining the two teachings. In particular, the range of additives listed in Roberts (listed, for example, at column 5, lines 47 to 54 and at column 9, lines 39 and 41) do not include or mention uncalcined gypsum or a similar material. Roberts makes no other reference to additives for the settable gypsum nor suggests uncalcined gypsum in the formulation.

Roberts relates to a different task and attempts to solve a different problem from that of the presently claimed invention. Roberts is directed to problems with laminar-type composites, *i.e.*, those including a gypsum layer and a mineral fibre layer. The focus of the Roberts teaching is set out in column 3, lines 1 to 3. Inasmuch as Roberts addresses a problem different from that of the present invention there is no guidance or likelihood of overlap with respect to Roberts and the DSG of Deleuil.

Reply to Response to Arguments that Deleuil Teaches 18%
"Gypsum Component":

With respect to the discussion of Deleuil on page 8 of the Office Action, paragraph 19, especially the statement that Deleuil teaches 18% "gypsum component," applicants respectfully

respond as follows. Applicants begin with observing that "(which equals 30-60% of gypsum to plaster as well)" in line 9 of paragraph 19 should state "40-70", which is the remainder (from 100%) of the 30-60% range in lines 8-9 of paragraph 19. The present statements also take into consideration the assertions concerning Deleuil on pages 5-6.

As explained in more detail below, applicants' calculations show that the w:w% parts "gypsum" (which the Office thinks is equivalent to DSG as claimed) is far in excess of the range of the present claims. To begin, applicants' claims recite w:w%. This is not in accordance with Deleuil's percentages, which are according to a term of art, "water gauge." The Examiner's calculation of 18% in paragraph 19 has included a water component that is inappropriate to include in a w:w% calculation unless water gauge is used throughout.

In the present patent application and claims, 10-30 w:w % is used as shorthand for the weight of the gypsum in the stucco plaster mix (*i.e.* gypsum over stucco weight). It is termed "gypsum on top of stucco". Gypsum is the wording used to describe the additive in the mixture of stucco and/or plaster. Stucco and/or plaster are used to mean the same thing.

Thus, w:w 30% can be described as 30 parts of gypsum in the mixture having 100 parts. In absolute weight:weight %, this converts to $30 / (30+100)$ or, in words, 30 parts gypsum divided by 30 parts gypsum plus 100 parts stucco (as stucco plus additive gypsum is the total mixture). The absolute w:w % is 0.23, or 23%. In the same way, w:w 10% can be described as 10 parts of gypsum in the mixture having 100 parts, and in absolute weight:weight %, this converts to $10 / (10+100)$ or, in words, 10 parts gypsum divided by 10 parts gypsum plus 100 parts stucco (as stucco plus additive gypsum is the total mixture). The absolute w:w % is 0.09, or 9%.

Deleuil in Claims 12 and 13 describes dry powder content only, reciting plaster at 30-99% or 30-60% by weight of the mixture of gypsum and plaster, but the Examiner mixes up the dry weights/percentages with those including a water component also mentioned in Deleuil. In Deleuil, water content is mentioned at Column 4, lines 12 to 15 and in Claim 14 (0-15% of the dry mix). The water content of the gypsum means the number of parts of water added to 100 parts of the dry mix. e.g. "water gauge" (a known term of art as noted above) of 40% is 100 parts of dry powder with an additional 40 parts water (total mass 140 parts), and a water gauge of 15% is 100 parts of dry powder with an

additional 15 parts water (total mass 115 parts). As a subtle point, applicants add that true "water gauge" also takes into account the stoichiometry of the components, which only slightly adjusts the calculation.

One can take the values from column 5 in Deleuil of 30-60% stucco/plaster (in gypsum + plaster), and infer 40 to 70% gypsum in plaster. In order to convert this Deleuil number to a w:w % gypsum on top of stucco starting with 30% stucco (or 30 parts stucco), to get to 100 parts stucco, multiply by $100/30 = 3.3$. With 30 parts stucco one has 70% (or 70 parts gypsum), multiply 70 parts by 3.3 to get the gypsum in 100 parts stucco. Gypsum = **231 w:w%**, or in absolute terms 0.698 (69.8%) from the calculation $231/(231 + 100)$ which is 231 parts gypsum divided by 231 parts gypsum plus 100 parts stucco.

Similarly one can take the 60% stucco/plaster Deleuil number and infer 40% gypsum. In order to convert this to a w:w % gypsum on top of stucco starting with 60% stucco (or 60 parts stucco), to get to 100 parts stucco, multiply by $100/60 = 1.67$. With 60 parts stucco one has 40% (or 40 parts gypsum), multiply 40 parts by 1.67 to get the amount of parts of gypsum in 100 parts stucco. Gypsum = **66.8 w:w%**, or in absolute terms 0.40

(40%) from $66.8 / (66.8 + 100)$ which is 66.8 parts gypsum divided by 66.8 parts gypsum plus 100 parts stucco.

As in Roberts, Deleuil is in an art area different from that of the present invention. Deleuil addresses compositions and does not look to the same additive areas as the present invention. In this way different wording and nomenclature are used to set out the additives and mixtures and different terms are used.

On pages 5-6, the Office discounts the significance of the stucco percentages claimed range of 10% to 30% w:w of uncalcined synthetic gypsum DSG particles present in the calcium sulfate hemihydrate specified in claims 1 and 13. The Office makes an assertion of *prima facie* obviousness to the effect that one of ordinary skill in the art would want to optimize the teachings of Deleuil to improve properties such as acoustics. In paragraph 19, the Office denies that this purported *prima facie* obviousness case has been overcome by applicants' EXAMPLES 1, 2 and 3 because Deleuil impliedly teaches applicants' claimed percentage range. However, this is not the case as demonstrated above. Applicants claim a different and unobvious approach, namely using 10% to 30% uncalcined synthetic gypsum DSG particles set during wallboard manufacture. Surprising from the

teachings of Roberts and Deleuil, this has resulted in gypsum wallboard with improved acoustic properties.

By the above observations, the teachings of Deleuil are even further afield when one considers the percentage ranges of claims 7 and 16, of claims 23 and 17, and of claims 9 and 18. Accordingly, the unobviousness of these dependent claims is believed to be in order separate and apart from the unobviousness of independent claims 1 and 13.

Reconsideration and withdrawal of this \$103 rejection is respectfully requested.

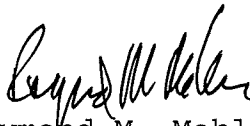
Roberts and Deleuil Plus Marcoux \$103 Rejection:

Marcoux is added to Roberts and Deleuil for the \$103 rejection of claims 12 and 19. Marcoux grinds waste gypsum boards and further processes same to obtain an absorbent or filler material. Marcoux teaches absorbency for oil, grease and chemicals on floors and in litter boxes. Acoustic properties improvement would not be reasonably expected. Reconsideration and withdrawal of this \$103 rejection of claims 12 and 19 are accordingly respectfully requested.

Applicants have made an earnest endeavor to place this application into condition for allowance, and favorable consideration is respectfully requested.

Respectfully submitted,

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